Conference Program

Monday April 8 | Morning Session

8:00 - 8:30	Registration and Welcome Coffee	
8:30 - 8:45	Welcome Address	Dr. Urs Frey & Dr. Marie Obien | MaxWell Biosystems, Switzerland
	Disease Modeling and Drug Discovery	
8:45 - 9:15	Scientific Talk	Modeling ADHD Neurodevelopmental Alterations and Treatment Effects Prof. Dr. Edna Grünblatt | Psychiatric University Hospital Zurich, University of Zurich, Switzerland
9:15 - 9:45	Scientific Talk	Validation of Novel Targeted Therapy for KCNQ2-Related Disorders in iPSC-Derived Neuronal Model Using High-Density MEA Dr. Marcus Kaji & Nina Dirkx | Applied and Translational Neurogenomics Group, VIB Center for Molecular Neurology, Belgium
9:45 - 10:00	Selected Short Talk	Neurodevelopmental Disease Modelling for Drug Discovery Using Patient-Derived Neuronal Co-Cultures Dr. Karin Stecher | Neurolentech, Austria
10:00 - 10:15	Selected Short Talk	MEA Embedded Microphysiological Platform for Studying Parkinson's Disease Related A–Synuclein Pathology Dr. Fikret Emre Kapucu | Neuro Group, Tampere University, Finland
10:15 - 10:45	Coffee Break	
10:45 - 10:55	MxW Flash Talk	Dr. Silvia Ronchi | MaxWell Biosystems, Switzerland
10:55 - 11:10	Sponsored Talk	Utilising Functional Human iPSC-Derived Neurons As A Robust Foundation For Generating Consistent, Physiologically Relevant HD-MEA Assays Tom Brown | bit.bio, United Kingdom
11:10 - 11:55	Keynote	Studying Toxic Mechanisms of TDP-43 in Human Neural Networks Prof. Dr. Magdalini Polymenidou | University of Zurich, Switzerland
11:55 - 12:30	Roundtable	Tips & Tricks - Best Practices in Cell Culture Techniques on HD-MEAs *with invited speakers*
12:30 - 14:00	Lunch	

Monday April 8 | Afternoon Session

Brain Development & Function		
14:00 - 14:20	MxW Flash Talk	Dr. Praveena Manogaran & Dr. David Jäckel | MaxWell Biosystems, Switzerland
14:20 - 14:50	Scientific Talk	Using Human Organoids to Model Normal and Pathological Brain Development and Function Dr. Michele Bertacchi | Studer Lab, Institut de Biologie Valrose, France
14:50 - 15:20	Scientific Talk	Of Mice And Men: Cerebral Organoids For The Study Of Brain Development Daniel Lloyd-Davies-Sánchez | Lancaster Lab, MRC Laboratory of Molecular Biology (LMB), United Kingdom
15:20 - 15:35	Selected Short Talk	Drug Response Heterogeneity for Alzheimer's Disease Patients Using iPSC-Derived Organoids as Pre-Clinical Platforms Dr. Cristina Zivko | Machairaki Lab, Johns Hopkins University School of Medicine, USA
15:35 - 15:50	Selected Short Talk	Recapitulation of Electrophysiological Spontaneous Activity in An In-Vitro Innervated Human Skin Equivalent Daniele Bellantoni | Netti Lab, Università degli Studi di Napoli Federico II, Italy
15:50 - 16:00	Group Photo	
16:00 - 16:30	Coffee Break	
16:30 - 16:45	Selected Short Talk	Integrating Network Activity With Transcriptomic Profiling in hiPSCs-Derived Neuronal Networks to Understand the Molecular Drivers of Functional Heterogeneity in the Context of Neurodevelopmental Disorders Ummi Ciptasari | Kasri Lab, Radboud University Medical Center, Netherlands
16:45 - 17:00	Sponsored talk	High density MEA Recording of Primary Rat Neuron Cultures and Human iPSC-Derived Neuron Cultures Growing at Low Density on Astrocyte Feeder Layers Dr. Raymond Price | Neuroservices-Alliance, USA
17:00 - 17:45	Keynote	Modeling Functional Human Brain Circuits In-Vitro with iPSC from Patients with Neurodegenerative Disorders Prof. Dr. Cedric Bardy | SAHMRI and Flinders University, Australia
17:45 - 18:30	Roundtable	Tips & Tricks - Optimizing Brain Organoid Recording with HD-MEAs *with invited speakers*
18:30 - 18:40	Closing Remarks	MaxWell Biosystems, Switzerland
18:40	Social Activity	

Tuesday April 9 | Morning Session

Advanced Neuroscience and Methods		
8:40 - 8:45	Opening Remarks	MaxWell Biosystems, Switzerland
8:45 - 9:15	Scientific Talk	Non-Genetic Neuron Optostimulation by Biophotonic Organic Transducers for Vision Restoration Prof. Dr. Fabio Benfenati | Istituto Italiano di Technologia, Italy
9:15 - 9:45	Scientific Talk	Propagation Speeds of Action Potentials in the Human Retina Compensate for Traveling Distances Dr. Annalisa Bucci | Franke Lab, IOB – Institute of Molecular and Clinical Ophthalmology Basel, Switzerland
9:45 - 10:15	Scientific Talk	Exploring Single Neuron and Network Activity in Cultured Human Cortex Slices Haley Moore | Konopka Lab, University of Texas Southwestern Medical Center, USA
10:15 - 10:25	MxW Flash Talk	Dr. Silvia Ronchi | MaxWell Biosystems, Switzerland
10:25 - 11:30	Coffee Break & Poster Session	
11:30 - 12:00	Scientific Talk	Synaptic Strength in Prefrontal Cortex Regulates Homeostatic Sleep Need Prof. Dr. Shoi Shi | International Institute for Integrative Sleep Medicine, University of Tsukuba, Japan
12:00 - 12:45	Keynote	Establishing Tools for Human Neuroscience Prof. Dr. Tom Nowakowski | University of California San Francisco, USA
12:45 - 13:45	Lunch	

Tuesday April 9 | Afternoon Session

Neural Networks and Artificial Intelligence		
13:45 - 14:00	MxW Flash Talk	Dr. Zhuoliang (Ed) Li | MaxWell Biosystems, Switzerland
14:00 - 14:30	Scientific Talk	Automated Experimentation and Characterization of Brain Organoid Neural Networks Prof. Dr. Mircea Teodorescu, Kateryna Voitiuk & Ash Robbins | Teodorescu Lab, University of California Santa Cruz, USA
14:30 - 15:00	Scientific Talk	Experimental Validation of the Free-Energy Principle with In-Vitro Neural Networks Prof. Dr. Takuya Isomura | RIKEN Center for Brain Science, Japan
15:00 - 15:15	Selected Short Talk	Information Processing Capacity Of Neuronal Reservoir Computing Using HD-MEA Dr. Dai Akita | Takahashi Lab, The University of Tokyo, Japan
15:15 - 15:30	Selected Short Talk	Closed-Loop Neuromodulation in MEAs - Disrupting Abnormal Neuronal Oscillations with Adaptive Delayed Feedback Control Prof. Dr. Paulo Aguiar | Institute for Research and Innovation in Health - University of Porto, Portugal
15:30 - 16:15	Keynote	Brain Organoid Computing for Artificial Intelligence Prof. Dr. Feng Guo | Indiana University Bloomington, USA
16:15 - 17:30	Poster Session & Coffee Break	
17:30 - 18:15	Special Guest Talk	The Brain as a Spontaneously Active Physical Reservoir Prof. Dr. Hirokazu Takahashi | The University of Tokyo, Japan
18:15 - 18:50	Roundtable	Pioneering Stories that Shaped MaxWell Biosystems Session Chair: Dr. Marie Obien | MaxWell Biosystems, Switzerland Panelists: Dr. Douglas Bakkum | Shift Crypto AG, Switzerland Dr. Urs Frey | MaxWell Biosystems, Switzerland Dr. Sadik Hafizovic | Zurich Instruments, Switzerland Prof. Dr. Andreas Hierlemann | Bio Engineering Laboratory, ETH Zurich, Switzerland Dr. Jan Müller | MaxWell Biosystems, Switzerland Prof. Dr. Hirokazu Takahashi | The University of Tokyo, Japan
18:50 - 19:00	Closing Remarks	MaxWell Biosystems, Switzerland
19:00 - 19:30	Transportation	
19:30 - 22:00	Conference Dinner	

Wednesday April 10 | Morning Session

Cutting-Edge Neuroengineering		
8:30 - 8:35	Opening Remarks	MaxWell Biosystems, Switzerland
8:35 - 9:05	Scientific Talk	Integration of Microfabrication Techniques for Enhanced Signal Measurement in Neuronal Networks Prof. Dr. Kenta Shimba | The University of Tokyo, Japan
9:05 - 9:35	Scientific Talk	Brain Microphysiological Systems Towards Cognition-on-a Dish Model Prof. Dr. Lena Smirnova | Johns Hopkins University School of Medicine, USA
9:35 - 9:50	Selected Short Talk	Nerve Model To Study The Diverse Electrophysiological Properties Of Human iPSC-Derived Nociceptive Neuron Subtypes Blandine Clément | Laboratory of Biosensors and Bioelectronics, ETH Zurich, Switzerland
9:50 - 10:05	Selected Short Talk	Advanced Interfaces for Investigating the Impact of Topology on the Functional Dynamics of Engineered Neural Networks Nicolai Winter-Hjelm | Sandvig Lab, Norwegian University of Science and Technology, Norway
10:05 - 11:20	Poster Session & Coffee Break	
11:20 - 11:30	MxW Flash Talk	Dr. Silvia Ronchi | MaxWell Biosystems, Switzerland
11:30 - 11:45	Selected Short Talk	In-Vitro MEA-Based Model to Investigate the Electrophysiological Features of the Cortical-Striatal-Thalamic (CST) Circuit Dr. Martina Brofiga | Massobrio Lab, University of Genova, Italy
11:45 - 12:00	Selected Short Talk	RT-Sort: An Action Potential Propagation Based Algorithm for Real Time Spike Detection and Sorting Tjitse van der Molen | Kosik Lab, University of California Santa Barbara, USA
12:00 - 12:45	Keynote	Interfacing Chemical Nanotechnologies with Biosystems Prof. Dr. Nako Nakatsuka | Neuro-X Institute, EPFL, Switzerland
12:45 - 13:20	Roundtable	Function and Future *with keynote speakers*
13:20 - 13:30	Closing Remarks	MaxWell Biosystems, Switzerland
13:30 - 14:00	End of MxW Summit 2024 & Lunch	
14:00 - 14:30	Transportation to MxW HQ	
14:30 - 17:00	MxW HQ Tour	